UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/01242

December 12, 2002

Mr. Fred Patron
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the Effects of the Salmon River (East Bridge Street) Bridge Project, Clackamas County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by the National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Salmon River (East Bridge Street) Bridge Project, Clackamas County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*) or LCR chinook salmon (*O. tshawytscha*). As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Art Martin of my staff in the Oregon Habitat Branch at 503.231.6848.

Sincerely,

For Michael R Course

D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Diana Hwang, USFWS
Tom Murtaugh, ODFW

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Salmon River (East Bridge Street) Bridge Project,
Clackamas County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	NOAA Fisheries, Northwest Region
Date Issued:	December 12, 2002
Issued by:	F.r Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**2002-01242**

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1. ENDANGERED SPECIES ACT

1.1 Background

On October 15, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Salmon River (East Bridge Street) Bridge Project, Clackamas County, Oregon. The Oregon Department of Transportation (ODOT) is the designated non-federal representative of the FHWA. Clackamas County is the applicant, and OBEC Consulting Engineers, Inc., is the prime consultant for Clackamas County and is responsible for the project design.

In the October 15, 2002 letter and the accompanying biological assessment (BA), the FHWA requested formal consultation for Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*) and LCR chinook salmon (*O. tshawytscha*). The FHWA determined that listed evolutionarily significant units (ESUs) of Columbia basin salmonids may occur within the project area, and that the proposed projects are "likely to adversely affect" (LAA) these species.

This biological opinion (Opinion) is based on the information presented in the BA, site visits, and discussions with Clackamas County, ODOT, the Oregon Department of Fish and Wildlife (ODFW), and project consultants.

This Opinion considers the potential effects of the proposed action on LCR steelhead and LCR chinook salmon. LCR steelhead were listed as threatened on March 19, 1998 (63 FR 13347) and protective regulations issued on July 10, 2000 (65 FR 42422). LCR chinook salmon were listed as threatened on March 24, 1999 (64 FR 14308) and protective regulations issued on July 10, 2000 (65 FR 42422). This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The proposed action includes the following major components: (1) Construction of a new bridge and new bridge approaches over the Salmon River; (2) strengthening the existing structure for use as a temporary work bridge and then its subsequent demolition; and (3) site restoration and compensatory mitigation.

The project BA includes a set of conservation measures or best management practices (BMPs) designed to minimize adverse effects to steelhead and chinook salmon and their habitats. These BMPs are described on pages 25-30 of the BA. Specific BMPs for bridge construction, bridge demolition, bank work, clearing and grubbing, erosion control, hazardous materials, staging of equipment and materials, in-water work, and site-specific conservation measures are included. NOAA Fisheries regards these BMPs as integral components of the project and considers them to be part of the proposed action.

Direct effects to listed species may occur at the project sites and may extend upstream or downstream based on: (1) A change to stream hydraulics; (2) sediment and pollutant discharge; (3) risk of chemical contamination of the aquatic environment; and (4) the extent of riparian habitat modifications. Indirect effects to listed species may occur throughout the watershed where the actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities includes the immediate watershed where the proposed actions will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of the Salmon River, extending upstream to the project disturbance limits, and downstream one mile below the project disturbance limits. Other areas of the Salmon River watershed will not be directly affected.

All in-water work activities will occur during the ODFW preferred in-water work timing guideline[1] of July 15 through August 31. Any extensions or alterations to the standard in-water work timing will require the written concurrence of a NOAA Fisheries biologist.

1.2.1 Bridge Construction

The proposed actions include the construction of a new bridge and new bridge approaches slightly upstream of the existing timber bridge crossing of East Bridge Street over the Salmon River near Welches, Oregon. The proposed structure will consist of a 36.60 meter (m) long by 6.55 m wide single span, precast concrete deck supported by concrete capped H-pile abutments. Additional bridge features include a 1.22 m wide sidewalk along the north shoulder, concrete curbs, and 3-tubed curb mount rails.

Staged construction utilizing the existing structure as a temporary work bridge, as well as short bridge closures will be required to complete the bridge while maintaining access for local residences. Construction materials and equipment will be staged at either of two locations. The first area is located less than 45 m from the OHWM, and as such will be within a 300-millimeter (mm) high containment berm to avoid and minimize potential adverse effects to the Salmon River. In the event the water elevation rises to within three vertical feet of this staging area, all equipment, fuel, and other staging materials will be removed. The second is a vacant field east of the current East Bridge Street approach. Staging at the second location will require clearing 371 square m of vegetation, including 50 deciduous trees, 10 of which range from 50 to 300 mm diameter at breast height (dbh).

Steel H-piles will be driven above the ordinary high water mark (OHWM), which is 406.5 m above sea level, as foundation for the new bridge abutments. No riprap will be necessary to protect the new bridge abutments from hydraulic scour. Although major components of the new

[1]Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

structure are pre-cast concrete, other components such as the cast-in-place pile caps will require the use of forms and green concrete over water to complete the proposed actions.

The new bridge abutments will be located at or above the OHWM, requiring a longer bridge span over the active channel of the Salmon River at the new bridge site. Pre-cast, bulb-T girders will be placed directly on the new abutments and would function as both the beams, as well as the bridge deck. The new bridge curbs will serve to convey stormwater off the bridge into catch basins consisting of trapezoidal vegetated ditches.

Containment measures will be implemented during construction to ensure that any concrete, construction materials, or excavated materials do not enter flowing waters during construction. Local soils are multorpor cobbly loam and are expected to rapidly infiltrate runoff at 13 to 58 centimeters (cm) per hour. The proposed improvements and lengthening of the stormwater drainage path are expected to function as both water quality and quantity treatments for the bridge runoff by enhancing opportunities for the settling particulates, filtration, and infiltration.

Construction of new bridge approaches will result in a net increase of approximately 265 square m of new impervious surfaces. Construction of the new bridge and new bridge approaches will result in a total removal of approximately 30 additional deciduous and conifer trees, 9 of which range between 150 and 700 mm dbh. Trees greater than 300 dbh will be stockpiled and used for the compensatory mitigation described in section 1.2.3 of this Opinion.

1.2.2 Existing Bridge Strengthening and Subsequent Demolition

The proposed actions include strengthening the existing structure to allow for its use as a temporary work platform during new bridge construction. Three steel H-piles will be driven from the existing roadway or bridge deck at two locations within the flowing water of the Salmon River. The H-piles will be driven approximately 3 to 4 m into the existing boulder/cobble substrate. Steel pile caps would then be added to the H-piles in order to create two temporary support piers. No in-water work area isolation is proposed because the construction of coffer dams would likely create greater in-water disturbance and result in excessive turbidity. Each H-pile will take approximately 2 hours to install.

Upon completion of the new bridge construction, the strengthened existing structure will be demolished and removed. The existing structure consists of treated timber components. Debris containment measures will be taken (under the existing structure) prior to the bridge's demolition to capture any demolition debris. The temporary reinforcement H-pile piers will be removed from either the new bridge or the temporary work platform. The existing asphalt and associated weatherproofing membrane will be peeled off and removed with an excavator or similar equipment. Bridge rails will be removed consecutively with the wearing surface. The timber deck diaphragms and glulam beams would then be lifted off the existing bridge abutments by crane from the newly constructed bridge. Although this work will occur over water, no in-water work would be required for this portion of the bridge demolition.

Excavation and removal of the existing concrete bridge abutments may require construction of a containment enclosure around the west abutment. The entire eastern abutment removal would occur above the OHWM. A small portion of the western abutment's concrete and grout will be removed below the OHWM. Abutment removal will occur during the ODFW preferred in-water work timing guideline of July 15 through August 31. No work within the flowing water of Salmon River should be necessary, and thus no in-water work area isolation is proposed.

1.2.3 Site Restoration and Compensatory Mitigation

The proposed action includes site restoration and compensatory mitigation activities, such as the matching of existing grades and slopes, site revegetation and donation of large woody materials to the U.S. Forest Service for an in-proximity fish habitat restoration project. The revegetation plan will include replacement of removed trees ranging from 5 to 30 cm dbh at a 2 to 1 ratio and trees greater than 30 cm dbh at a 5 to 1 ratio. Trees will be replanted along the west side of the river within the footprint of the existing approach and within the staging area. Understory shrubs such as vine maple, salal, huckleberry, rhododendron and sword fern will be planted within disturbed areas. Clackamas County proposes to monitor the revegetated areas for a five-year plant establishment period, and to achieve an 80% tree canopy cover at the end of that plant establishment period. Trees greater than 300 cm dbh will be stockpiled and used by the USFS for a fish habitat restoration project located approximately 0.5 miles downstream of the project site.

1.3 Biological Information

1.3.1 Lower Columbia River Steelhead

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that many steelhead stocks comprising the LCR steelhead evolutionary significant unit (ESU) are depressed compared with past abundance. The listing status and biological information for LC steelhead are described in Busby *et al.* (1996) and final listing determination in the Federal Register (March 19, 1998, 63 FR 13347). Protective regulations were extended under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

Adult winter steelhead in this ESU typically re-enter the river systems starting in November and continuing through the end of March. Peak re-entry is in January and February. The adults spawn soon after reentering. The fry emerge from April into July, and then rear in freshwater for 1 to 3 years. The juvenile fish smolt in the spring and migrate downstream to the Pacific Ocean from March through June during high spring flows. Summer steelhead reenter freshwater in June and July, and require several months of maturation before spawning. The summer steelhead overwinter in freshwater until they spawn in late winter to early spring. In the LCR steelhead ESU, most spawning occurs from March through May.

No estimates of historical (pre-1960s) abundance data are available for this ESU (Busby *et al.* 1996). Estimates from the 1980s showed that 75% of the total run was of hatchery origin.

Habitat degradation is common throughout the ESU, primarily due to urbanization and logging. The habitat degradation affects summer steelhead more than winter steelhead. Past and present hatchery practices are a major threat to the genetic integrity of steelhead in the ESU.

The Sandy River watershed is bisected by the Marmot Dam at river mile (RM) 30. Upstream fish passage is regulated at the fish ladder and fish trap located at Marmot Dam. Fish passage monitoring at Marmot Dam indicates a downward trend in wild LCR steelhead escapement into the upper Sandy River watershed. Recent annual spawning escapement figures have ranged between a high of 2,916 (1991) and a low of 537 (1995) adults over the last decade[2]. LCR steelhead passing Marmot Dam have unimpeded access to the action area, and the Salmon River supports a naturally-reproducing population of LCR steelhead.

1.3.2 Lower Columbia River Chinook Salmon

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that many stocks comprising the LCR chinook salmon ESU are depressed compared with past abundance. The listing status and biological information for LCR chinook salmon are described in Myers *et al.* (1998), and final listing determination in the Federal Register (March 24, 1999, 64 FR 14308). Protective regulations were extended under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

This ESU includes all naturally-spawned populations of chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon, east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon, exclusive of spring-run chinook salmon in the Clackamas River.

Spring chinook salmon return as adults in the late winter and spring. Fall chinook salmon return as adults in the late summer or fall. Spawning of spring chinook occurs during late summer, with spawning peaking in August and September. Fall chinook spawning peaks shortly thereafter the first significant fall rains in September or October. Spawning occurs in deeper waters of small tributary streams. Eggs hatch the following spring. Spring chinook juveniles rear in the fresh water for one year prior to downstream migration. Fall chinook juveniles start their downstream migration to the ocean in March and April, and may spend a few weeks to a few months rearing in freshwater before moving slowly down the river as subyearlings.

No estimates of historical abundance are available for this ESU. The current production appears to be predominantly hatchery-driven with few identifiable native, naturally-reproducing populations (Myers *et al.* 1998). Long- and short-term trends in abundance of individual populations are mostly negative, some severely so. Freshwater habitat is in poor condition, with problems related to forestry practices, urbanization and agriculture.

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[2]Telephone conversation with Craig Foster, ODFW (February 11, 2002) confirming Marmot Dam adult fish passage totals by species from 1990-2000.

Fish passage monitoring at Marmot Dam indicates a downward trend in LCR chinook salmon escapement into the upper Sandy River watershed. Recent annual spawning escapement figures have ranged between a high of 6,984 (1992) and a low of 1,503 (1995) adults over the last decade[3]. LCR chinook salmon passing Marmot Dam have unimpeded access to the action area, and the Salmon River supports a naturally-reproducing population of LCR chinook salmon.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent measures available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of LCR steelhead and LCR chinook salmon under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each

[3]Telephone conversation with Craig Foster, ODFW (February 11, 2002) confirming Marmot Dam adult fish passage totals by species 1990-2000.

consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally-reproducing population level, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the listed species, based upon their risk of extinction, has not significantly improved since the species were listed.

1.4.2 Environmental Baseline

The most recent evaluation of the environmental baseline for the Columbia River is part of the NOAA Fisheries's Opinion for the Federal Columbia River Power System (FCRPS) issued in December 2000. This Opinion assessed the entire Columbia River system below Chief Joseph Dam and downstream to the farthest point (the Columbia River estuary and nearshore ocean environment) at which listed salmonids are influenced. For a detailed evaluation of the environmental baseline of the Columbia River basin please refer to the FCRPS Opinion (NOAA Fisheries 2000).

The quality and quantity of freshwater habitats in much of the Columbia River basin have declined dramatically in the last 150 years. Forestry, farming, grazing, road construction, hydrosystem development, mining, and urbanization have radically changed the historic habitat conditions of the basin. Depending on the species, they spend anywhere from a few days to one or two years in the Columbia River and its estuary before migrating out to the ocean, and another one to four years in the ocean before returning as adults to spawn in their natal streams.

Water quality in streams throughout the Columbia River basin has been degraded by human activities such as dams and diversion structures, water withdrawals, farming and grazing, road construction, timber harvest activities, mining activities, and urbanization. Tributary water quality problems contribute to poor water quality where sediment and contaminants from the tributaries settle in mainstem reaches and the estuary. Temperature alterations also affect salmonid metabolism, growth rate, and disease resistance, as well as the timing of adult migrations, fry emergence, and smoltification. Many factors can cause high stream temperatures, but they are primarily related to land-use practices rather than point-source discharges. Loss of wetlands and increases in groundwater withdrawals have contributed to lower base-stream flows, which in turn contribute to temperature increases. Channel widening and land uses that create shallower streams also cause temperature increases.

Pollutants also degrade water quality. Salmon require clean gravel for successful spawning, egg incubation, and emergence of fry. Fine sediments clog the spaces between gravel and restrict the flow of oxygen-rich water to the incubating eggs. Excess nutrients, low levels of dissolved oxygen, heavy metals, and changes in pH also directly affect the water quality for salmon and steelhead.

The Sandy River watershed is a southern tributary of the Columbia River, on the west side of Oregon's Cascade Mountains. For the purposes of fish management, the Sandy River watershed is divided into the upper and lower Sandy River basins by Marmot Dam. The upper Sandy River basin is managed as a wild fish preserve, with no hatchery fish releases or adult hatchery passage into the Sandy River above Marmot Dam. The upper Sandy River watershed originates from the Sandy, Zigzag, and Reide Glaciers on the west slope of Mt. Hood. From the headwaters, the upper Sandy River watershed flows through several volcanic debris flows before entering the lower Sandy River watershed.

The Salmon River is a tributary of the upper Sandy River watershed at approximately RM 38. The Salmon River watershed originates below Mt. Hood's many glaciers and, as a result, is not glacially influenced and runs clear year-round. The dominant land uses in the Salmon River watershed are Federal forest lands, and to lesser degrees, private forest lands and rural development.

The Salmon River has degraded habitat resulting from forestry practices, rural development, draining and filling of wetlands, and the construction and maintenance of the state, county, and local transportation infrastructure which altered the natural drainage system. The large woody debris, off-channel habitat, pool frequency, and floodplain connectivity habitat indicators are not properly functioning within the action area because of chronic habitat degradation. In addition, the following environmental baseline indicators are at risk: Temperature, physical barriers, refugia, width to depth ratio, streambank condition, disturbance history, and riparian reserves.

Based on the best available information on the current status of LCR steelhead and LCR chinook salmon range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of LCR steelhead and LCR chinook salmon within the action area are not currently being met. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of LCR steelhead and LCR chinook salmon.

1.5 Analysis of Effects

1.5.1 Effects of the Proposed Action

Creeks and rivers are dynamic systems that naturally alter their courses in response to many physical processes. Roadways and other structures constructed along waterways are subject to flooding and undercutting as a result of these natural changes in the stream course. Structural

hardening of embankments is the traditional means of protecting these structures along waterways. Hardened embankments simplify stream channels, alter hydraulic processes, and prevent natural channel adjustments (Spence *et al.* 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project and accelerate stream velocity. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by diversity of habitats at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature and stabilizes stream banks. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flows, retain bed load sediment, create pools, and reduce flow velocity.

The combination of channel confinement within the existing bridge abutments and the legacy of large woody material removal within the system and specifically at roadway crossings has simplified the habitat within the action area and retarded the formation and maintenance of complex fish habitat within the project reach.

Sediment.
The driving of the temporary H-pile bridge piers may temporarily increase releases of sediment. Transportation of sediments into the Salmon River from upland construction activities is also possible. Upland excavation will expose and dislodge soils, increasing erosion and stream turbidity during rainfall. An increase in turbidity from suspension of fine sediments can adversely affect fish and filter-feeding macro-invertebrates downstream of the work site. At moderate levels, turbidity has the potential to reduce primary and secondary productivity; at higher levels, turbidity may interfere with feeding and may injure and even kill both juvenile and adult fish (Spence *et al.* 1996, Berg and Northcote 1985).

To minimize the potential for increased turbidity and disturbance of fish, in-water work will occur during the ODFW preferred in-water work timing guideline of July 15 through August 31 or as approved by NOAA Fisheries. During this window, streamflows are typically low, fish presence is reduced, and rainfall is minimal.

Chemical Contamination.
As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can

have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996).

To minimize the potential for chemical contamination and disturbance of fish, in-water work will occur during the ODFW preferred in-water work timing guideline of July 15 through August 31 or as approved by NOAA Fisheries. During this window, streamflow is typically low, fish presence is reduced, and rainfall is minimal. In-water work area isolation will allow the work to occur in the dry, thereby reducing indirect (chemical contaminants) from entering the actively flowing water and direct impacts to fish. The applicant does not propose the use of herbicides.

Riparian Vegetation.
Woody riparian vegetation provides large wood to the stream, which encourages the creation of rearing and spawning areas. Riparian vegetation also provides water quality functions (*e.g.* temperature control and nutrient transformation), bank stability, detritus (insect and leaf input, small wood for substrate for insects, *etc.*), microclimate formation, floodplain sediment retention and vegetative filtering, and recharge of the stream hyporheic zone. Riparian trees removed as a result of the project will be replanted at a 2 to 1 ratio or a 5 to 1 ratio, depending on size, to replace lost function provided by living riparian species. All larger riparian trees removed (300 cm dbh or larger) will be used within the action area as habitat features to replace the potential for lost function as future large wood recruitment. Site restoration and compensatory mitigation measures should avoid and mitigate any potential long-term adverse effects to the riparian areas within the action area.

Stream Hydraulics.
The construction of the new Salmon River Bridge over the Salmon River channel will decrease hydraulic constriction and improve general ecological connectivity such as sediment transport and large woody debris transport within the Salmon River watershed.

Direct Harm or Harassment.
Any listed salmonids in the immediate vicinity of the H-pile diving will likely temporarily relocate to avoid turbidity, vibration, or direct contact with the H-piles. Although direct mortality is conceivable, it is not be likely.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area thatwould cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

1.6 Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of LCR steelhead and LCR chinook salmon or result in the destruction or adverse modification of critical habitat. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries applied its evaluation methodology (NMFS 1996) to the proposed action and found that it could cause slight degradation of anadromous salmonid habitat due to increases in sedimentation and turbidity. Furthermore, NOAA Fisheries expects that construction related and H-pile installation effects could alter normal feeding and sheltering behavior of juvenile LCR steelhead and LCR chinook salmon should any be present in the action area during the proposed action. These effects will be temporary.

Our conclusions are based on the following considerations: (1) Most of the proposed work will occur outside of the flowing waters of the Salmon River (*i.e.*, in the dry); (2) in-water work will occur during the ODFW's preferred work window of July 15 through August 31, by which NOAA Fisheries expects to minimize the likelihood of LCR steelhead and LCR chinook salmon presence in the action area due to low flow and warm water conditions; (3) any increases in sedimentation and turbidity to the lower reaches of the Salmon River will be short-term and minor in scale, and will not change or worsen existing conditions for stream substrate in the action area; and (4) all other effects described in section 1.5 above will be beneficial over the long term.

1.7 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals that effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16); or (5) the FHWA fails to ensure that proposed compensatory mitigation is constructed within one year of completion of the proposed action.

If the FHWA fails to provide specified monitoring information by the required date, NOAA Fisheries will consider that a modification of the action that causes an effect on listed species not previously considered, and would cause this Opinion to expire. Consultation also must be reinitiated 5 years after the date this Opinion is signed. To reinitiate consultation, contact the Habitat Conservation Division (Oregon Habitat Branch) of NOAA Fisheries.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as action that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of LCR steelhead or LCR chinook salmon because of potential adverse effects from increased sediment levels, chemical contamination, and the potential for direct incidental take during in-water work. The potential adverse effects of the these project components on population levels are largely unquantifiable, and NOAA Fisheries does not expect them to be measurable in the long term. The extent of authorized take is limited to LCR steelhead or LCR chinook salmon in the Salmon River, and is limited to that caused by the proposed action within the action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require the contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. The FHWA shall:

1. Minimize the likelihood of incidental take from bridge replacement or streambank alteration actions by directing the contractor to use an approach that maximizes ecological functions.

2. Minimize the likelihood of incidental take from activities involving bridge replacement, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

3. Complete a comprehensive monitoring and reporting program to ensure implementation of these conservation measures are effective in minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (bridge replacement or streambank alteration actions), the FHWA shall ensure that:

    a. The use of rock and riprap is avoided or minimized.
        i. Rocks will be individually placed in a way that produces an irregularly-contoured face to provide velocity disruption. No end dumping will be allowed.
    b. Any in-stream large wood or riparian vegetation that is moved or altered during construction will stay on site or be replaced during site restoration or compensatory mitigation with a functional equivalent.
    c. Where feasible, the bankline will be revegetated using natural vegetation.

2. To implement reasonable and prudent measure #2 (bridge replacement, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage), the FHWA shall ensure that:

    a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized.
    b. In-water work. All work within the active channel will be completed within the in-water work period of July 15 - August 31 for the site as recommended by ODFW. Extensions of the in-water work period must be concurred with by NOAA Fisheries.
    c. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed for the project to prevent point-source pollution related to

construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:

i. Measures will be taken to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.

ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.

iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

iv. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

d. Bridge Demolition Containment Plan. Prior to bridge demolition, a written a bridge demolition containment plan will been submitted to and approved by NOAA Fisheries in writing.

e. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:

i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

f. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:

i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area or as otherwise approved by NOAA Fisheries.

ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.

iii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[5] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.

(2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate for permanent stabilization.

g. Heavy Equipment. Heavy equipment will be fueled, maintained and stored as follows:

i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream except the staging area on the southwest corner of the existing bridge as described in section 1.2.1 of this Opinion.

ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iii. When not in use, vehicles will be stored in the vehicle staging area.

h. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner:

i. Disturbed areas will be planted with native vegetation specific to the project vicinity and/or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species. Trees species planted to replace removed trees greater than 30cm dbh will be at least 1 m tall at time of planting.

ii. No herbicide application will occur as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

iii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

iv. Plantings will achieve an 80% cover success after five years.

(1) If success standard has not been achieved after five years, the applicant will submit an alternative plan to NOAA Fisheries. This alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue, and monitoring reports will be submitted to NOAA Fisheries on an annual basis for at least 5 years, and until site restoration success has been achieved.

[5] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the FHWA shall ensure that:

   a. Within 120 days of completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success meeting their permit conditions. This report will consist of the following information:
      i. Project identification.
         (1) Project name;
         (2) starting and ending dates of work completed for this project; and
         (3) the FHWA contact person.
      ii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
      iii. Site restoration. Documentation of the following conditions:
         (1) Finished grade slopes and elevations;
         (2) log and rock structure elevations, orientation, and anchoring, if any;
         (3) planting composition and density; and
         (4) a plan to inspect and, if necessary, replace failed plantings and structures for a period of 5 years, including the compensatory mitigation site. This specifically includes the large wood placements by the USFS as part of the proposed compensatory mitigation.
      iv. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.
      v. Photographic documentation of environmental conditions at the project site before, during and after project completion.
         (1) Photographs will include both general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
         (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
         (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
   b. On an annual basis, for 5 years after completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success in meeting their site restoration and compensatory mitigation goals. This report will consist of the following information:
      i. Project identification.
         (1) Project name;

(2) starting and ending dates of work completed for this project; and
(3) the FHWA contact person.

ii. Site restoration. Documentation of the following conditions:
(1) Any changes in log and rock structure elevations, orientation, and anchoring;
(2) any changes in planting composition and density; and
(3) a plan to inspect and, if necessary, replace failed plantings and structures, including the compensatory mitigation site.

iii. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

iv. Photographic documentation of environmental conditions at the project site after project completion as they relate to fish passage and site restorations goals as described above.
(1) Photographs will include general both project location views and close-ups showing details of the project area and habitat features of the channel relocated reaches.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, as they relate fish passage and site restorations goals.

c. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: 2002/01242
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

d. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the NOAA Fisheries' Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH.
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH

consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activity that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For the purposes of this consultation, the action area is defined as the streambed, streambank and riparian corridor of the Salmon River, extending to the upstream project disturbance limits and downstream one mile below the project disturbance limits. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5 of this document, the proposed activities may result in short-term adverse effects to water quality (sediment, chemical contamination, riparian vegetation removal). NOAA Fisheries expects short-term adverse effects from increases in turbidity and the potential for chemical contamination within the action area. NOAA Fisheries expects long-term beneficial effects from decreased constriction and improved hydraulic conditions of the Salmon River channel as a result of the proposed bridge replacement.

3.6 Conclusion

The proposed action will adversely affect the EFH for chinook and coho salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2 and 2.3

are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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